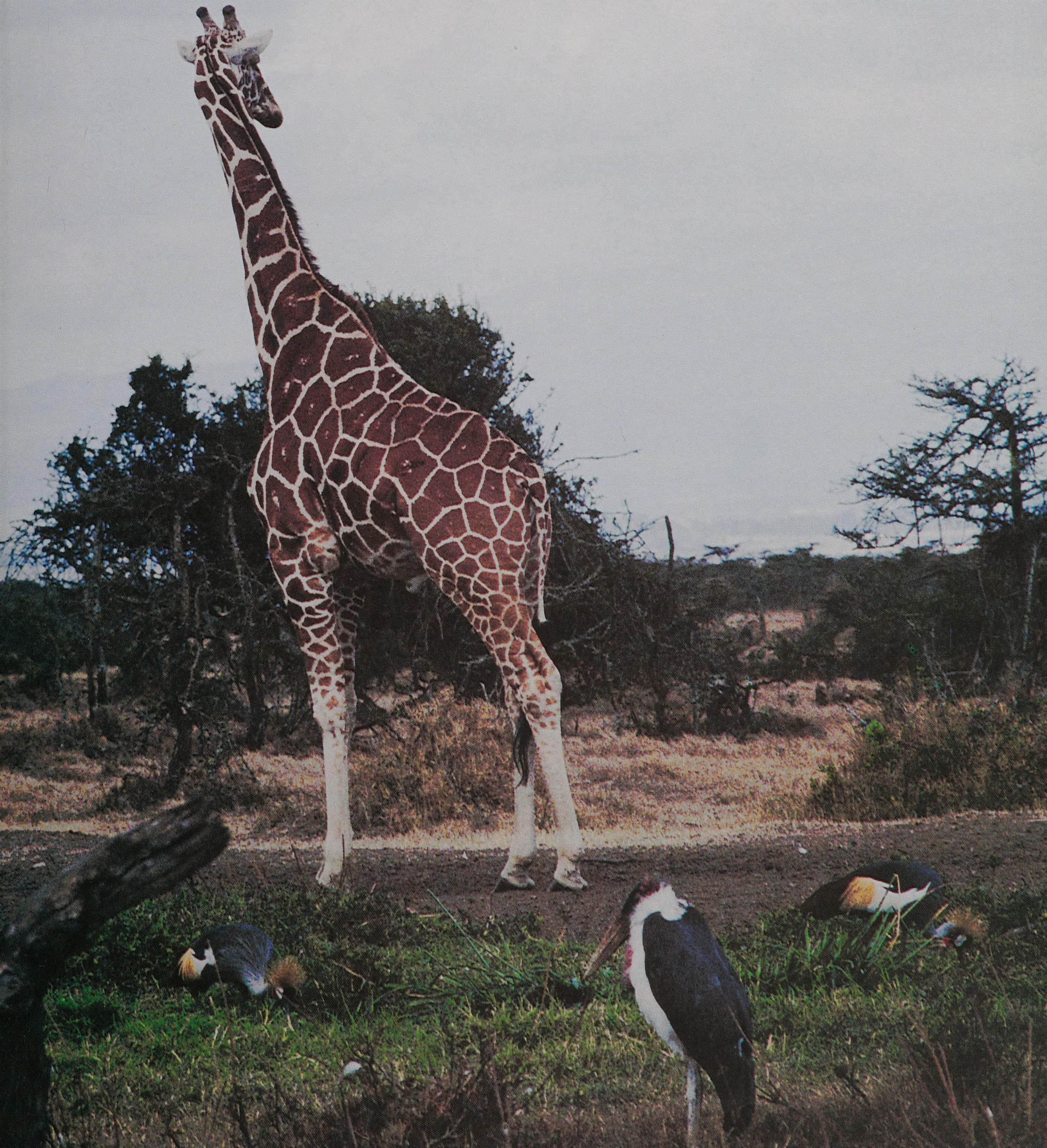
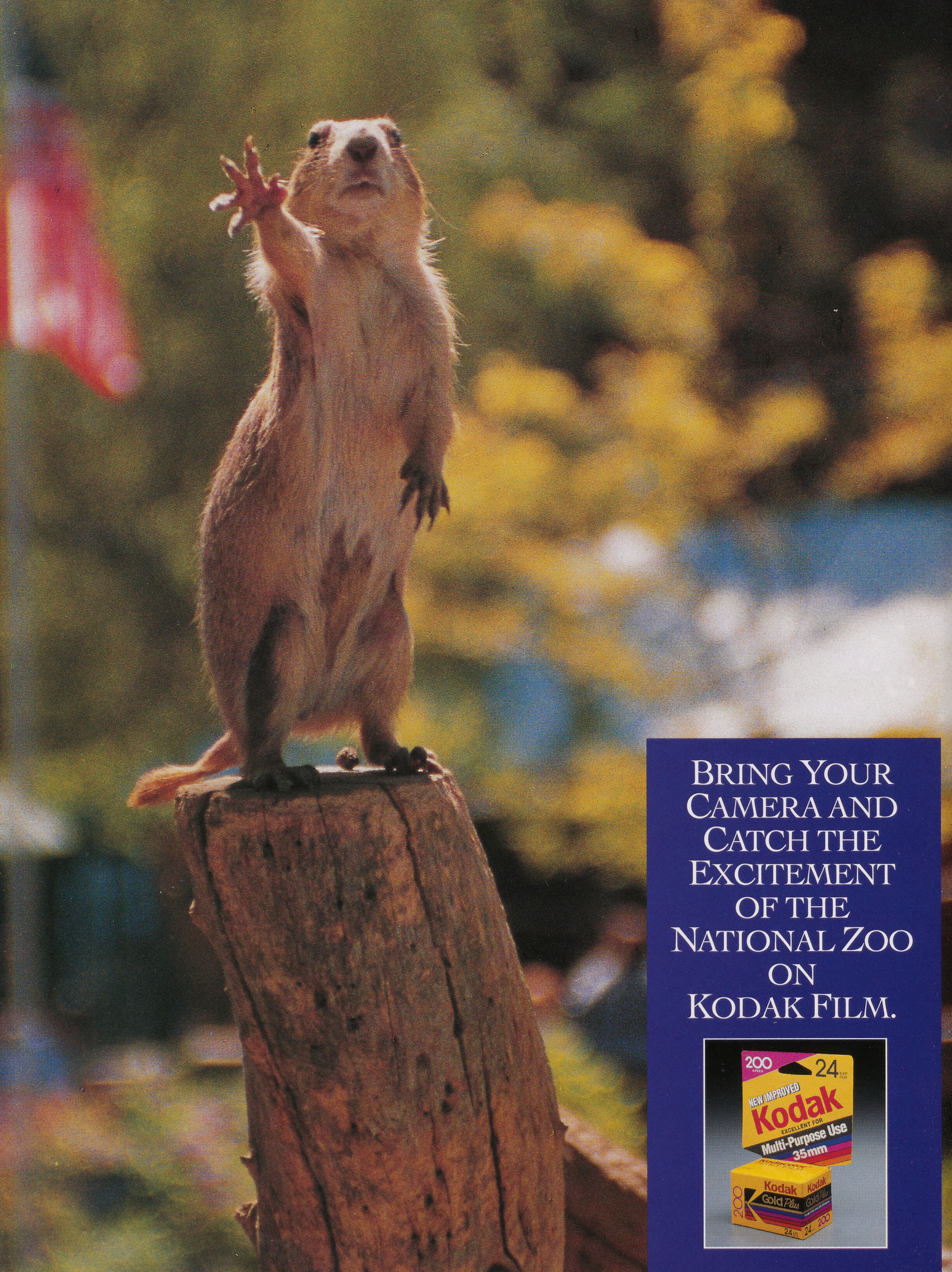


ZOOGOER

MARCH • APRIL 1994



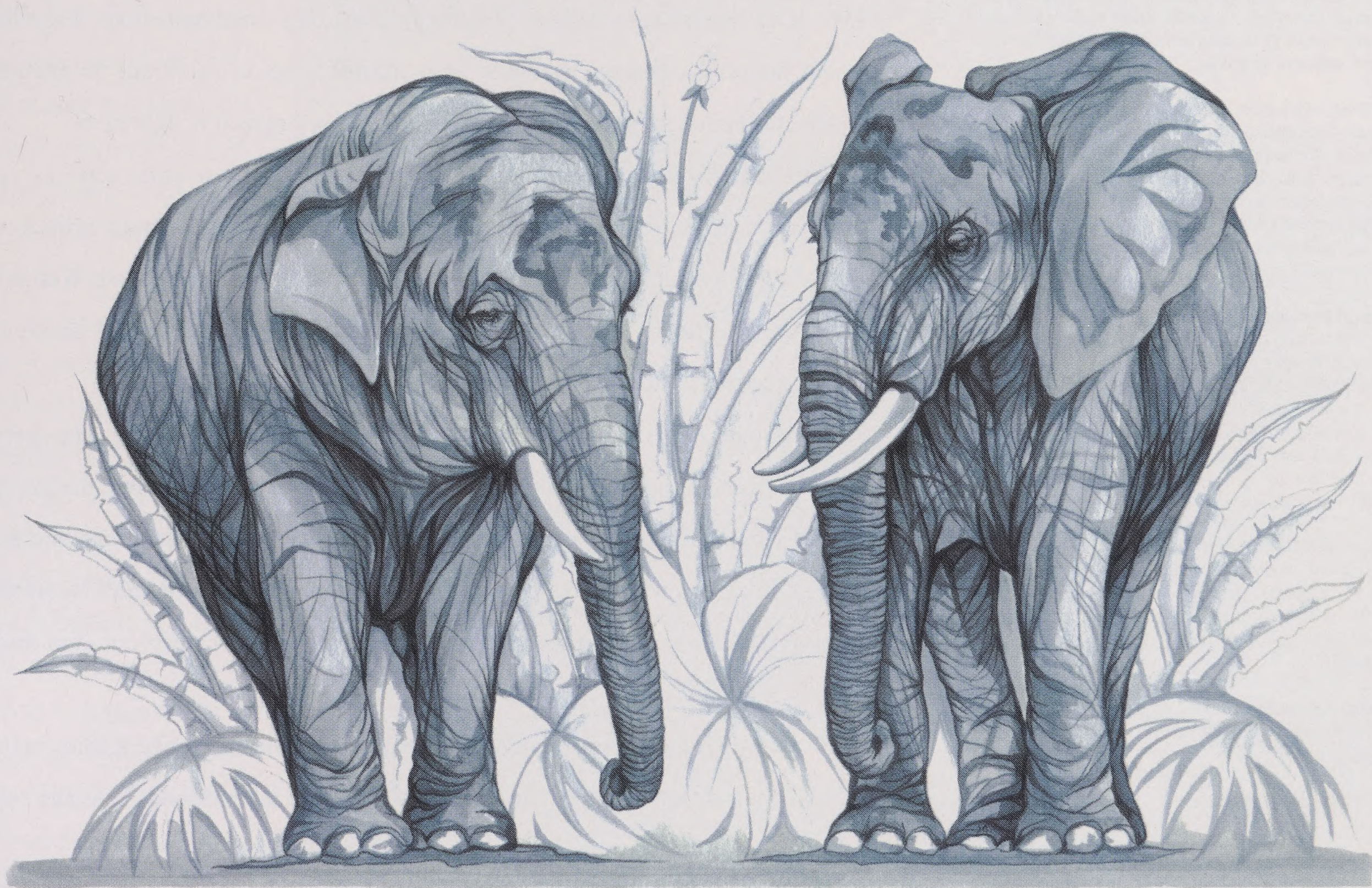


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ZOOGOER

VOLUME 23 • NUMBER 2 • MARCH • APRIL 1994



Elephants by Jane W. Gaston.

FEATURE

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GIANTS

In this special ZooFari issue, Giants, we explore a topic so big we needed the entire magazine to cover it. From blue whales to giant spider crabs, from Goliath to the Sears Tower, and from the Zoo's Asian elephants to its Komodo dragons, Giants offers a collage of comparisons—some silly, some serious—designed to put big animals in perspective.

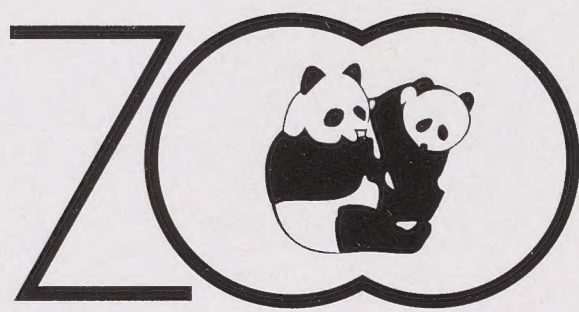
DEPARTMENT

29

NOTES & NEWS

Migratory Bird Day at the National Zoo, an invitation to join the FONZ Board, last call for ZooFari tickets, and Uncle Beazley returns.

**Friends
of the
National**



is a nonprofit organization of individuals, families, and organizations who are interested in helping to maintain the status of the National Zoological Park as one of the world's great zoos, to foster its use for education, research, and recreation, to increase and improve its facilities and collections, and to advance the welfare of its animals.

ZooGoer [ISSN 0163-416X] is published six times a year by Friends of the National Zoo to promote its aims and programs, and to provide information about FONZ activities to its members, volunteers, and others interested in the purposes of FONZ. The nonmember subscription rate is \$12 a year. Third class mailing permit no. 6282. Copyright 1994, Friends of the National Zoo, National Zoological Park, Washington, D.C. 20008. All rights reserved.

The National Zoological Park is located in the 3000 block of Connecticut Avenue, N.W., Washington, D.C. 20008, 202-673-4717. Weather permitting, the Zoo is open every day except Christmas. Hours: From October 16 to April 14, grounds are open from 8:00 a.m. to 6:00 p.m.; buildings, 9:00 a.m. to 4:30 p.m. From April 15 to October 15, grounds are open from 8:00 a.m. to 8:00 p.m.; buildings, 8:00 a.m. to 6:00 p.m.
Director: Michael H. Robinson.

Membership in FONZ entitles you and your family to many benefits: publications, discount privileges, and invitations to special programs and activities to make your zoogoing more enjoyable and educational. To join, write FONZ Membership, National Zoological Park, Washington, D.C. 20008, or call 202-673-4960.

Membership categories are:

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Cover: In Kenya, a giraffe towers over a landscape that includes a marabou stork and African crowned cranes.
(John Seidensticker)

THINKING BIG

With Giants as its theme, this year's National ZooFari promises to be our biggest fundraising event ever. It has to be—the need is bigger than ever.

Like other federal agencies, the Zoo faces downsizing—real reductions in the human and financial resources available from federal funds to carry out its mission. Ironically, that mission has never been so vitally important as it is right now.

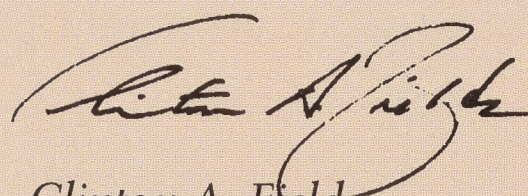
As our global environmental crisis worsens, the Zoo's scientists are racing against time to learn about endangered species and help save them from extinction. Among the giants that the Zoo is struggling to save are Asian elephants, Komodo dragons, gorillas, tigers, and, of course, giant pandas. These are essential programs that must not only continue, but grow.

As important as the knowledge we gain is the knowledge we impart. The everyday decisions and actions of millions of people will ultimately determine the fate of the world's biological diversity. So we must, through innovative new exhibits and education programs, educate, inspire, and create vocal advocates of wildlife and the environment. This is not the time to cut back, but to teach and reach out even more widely.

That is why ZooFari takes on new importance. Zoo Director Mike Robinson has described ZooFari proceeds as “the icing on the cake of federal funds.” As the cake shrinks, however, we must be more generous with the icing.

So please plan now to attend ZooFari on May 19. As always, ZooFari will be a spectacular party, with fabulous food from more than 80 restaurants, entertainment by Bo Diddley and dozens of local performers, and diversions from animal demonstrations to a silent auction. There is no better party in Washington—and no better cause!

Sincerely,



Clinton A. Fields
Executive Director

For more information, please see page 29. To reserve tickets and tables, please call 202.673.4960.

GIANTS

BLUE WHALE

Weighing more than 150 tons—300,000 pounds!—the blue whale (*Balaenoptera musculus*) is the largest living animal. At the other extreme, a *Mycoplasma* at less than 0.1 pg (10^{-13} g) is the smallest living creature. Duke University biologist Knut Schmidt-Nielsen offers a way to begin to comprehend the enormity of this range. Imagine, he suggests, a super-giant organism as much bigger than a blue whale as a blue whale is bigger than a *Mycoplasma*. That super-giant would be 100 times the size of the earth!

Mike Manolson
Center for Marine Conservation



NORWAY

It would take about 12 blue whales, lined up nose to tail, to equal the 1,035-foot length of the world's largest cruise ship, the Norway, which carries 2,400 passengers.

Courtesy of Norwegian Cruise Line

BY SUSAN LUMPHIN & WARD MERRITT



GREAT BARRIER REEF

The Great Barrier Reef of northeastern Australia is not only the world's largest coral reef, it is also the biggest organic structure on the planet. Composed of the skeletal remains of coral polyps dating back millions of years, topped by a living layer of at least 350 species of corals, the 1,250-mile-long reef is comparable in length to the Great Wall of China, which, at 1,500 miles long, is probably the largest structure ever built by humans. Just as the Great Wall is an amalgamation of many smaller walls, the Great Barrier Reef is composed of thousands of individual reefs. And both structures have suffered significant damage in recent years: part of the Great Wall was destroyed in 1979 to make way for a dam, and the Great Barrier Reef has been ravaged by the crown-of-thorns starfish, which feeds on living coral.

Rick Sammon

ARMILLARIA BULBOSA

In 1992, scientists found a fungus in northern Michigan that rivals a blue whale in size. The fruiting bodies (what we call mushrooms) are just the tip of the iceberg of *Armillaria bulbosa*. The underground portions are estimated to weigh 100 tons and cover 37.5 acres, larger than the 29-acre ground area of the Pentagon, which is the world's largest office building.

James B. Anderson



BULL MOOSE

Largest of the deer, an Alaskan bull moose (*Alces alces*) can weigh nearly 1,800 pounds and stand 7.5 feet at the shoulder. Maine's moose weigh only half this much, but they are still formidable creatures. Car-moose collisions are common in Maine, where, in 1992, 569 such collisions were fatal to a moose and four to people. One 45-mile stretch of Route 201, known as Moose Alley, records 100 collisions a year. In a not untypical crash, a brand-new, two-ton Ford XLT Lariat truck going 50 m.p.h. hit a moose. Damages to the truck were estimated at \$4,000 to \$5,000, enough for the driver's insurance company to total the vehicle.

John Seidensticker

**GET BIGGER AND LIVE LONGER**

Within animal groups, size and longevity are closely related: the bigger an animal is, the longer it lives. Curiously, birds of a given size live more than twice as long as mammals of the same size. Some long-lived giants:

Humpback whale 95 years

African elephant 60 to 80 years

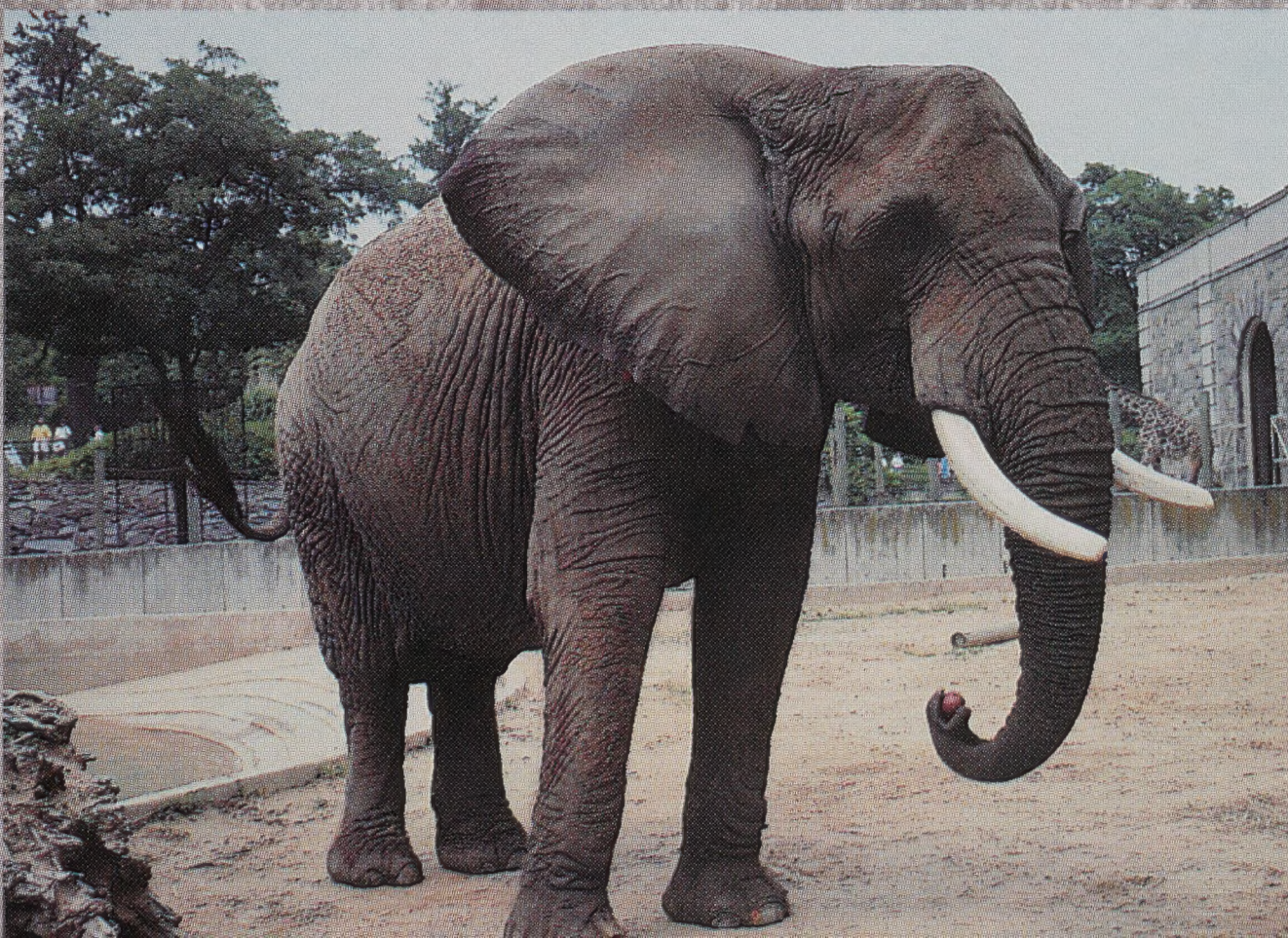
Flying fox 30 years

Ostrich 40 to 50 years

Andean condor 50+ years

American lobster 50 years

Beluga sturgeon 70 years

**AFRICAN ELEPHANT**

Nancy, the National Zoo's 40-year-old African elephant, weighs in at 9,200 pounds. But the heaviest of African bull elephants may reach 15,400 pounds. African elephants (*Loxodonta africana*) are the largest living terrestrial mammals, but not the largest ever. That distinction goes to a rhinolike creature called *Indricotherium*, estimated to have been about 30 tons—about the same size as the long-necked dinosaur *Apatosaurus*.

Jessie Cohen/NZP

IRISH ELK

The extinct Irish elk, or giant deer (*Megaloceros giganteus*), is the largest-antlered deer ever to have lived. The largest Irish elk stags carried antlers that weighed from 95 to 110 pounds—heavier than the entire body weights of nearly half of the 36 deer species alive today. Even more impressive, the antlers of these largest specimens spanned as much as 14 feet, which is longer than two large white-tailed deer bucks lined up nose to tail!

Chip Clark
National Museum of Natural History

CAPYBARA

At up to 145 pounds—about the weight of an adult woman—South America's capybara (*Hydrochoerus hydrochaeris*) is the largest living rodent. Its extinct relatives, however, were heavier than grizzly bears!

Fiona Sunquist



VICTORIANA LILY

The South American water lily *Victoriana amazonica* produces a leaf that is among the world's largest. Giant specimens have measured eight feet in diameter. For comparison, residential satellite dishes are eight to ten feet in diameter. The National Zoo's giant lilies (pictured here) are a smaller hybrid of *Victoriana amazonica* and *Victoriana cruziana*, bred to withstand colder northern climates. The leaves of *Victoriana* are deceptively strong and can easily bear the weight of an average-sized human. In 1849, noted English landscape gardener and building designer Sir Joseph Paxton was the first to successfully grow the *Victoriana* lily outside South America. He later used the intricate, veined pattern observed on the leaf's underside as the basis of his designs for a water lily house, a conservatory, and, eventually, the famous Crystal Palace, built in 1851 for London's Great Exhibition.

Jessie Cohen/NZP



RAFFLESIA

The largest flower bloom belongs to *Rafflesia*, a parasitic plant of Southeast Asia. Blooms reach three feet in diameter and weigh 15 pounds. Also known as the stinking corpse lily, *Rafflesia* is pollinated by carrion flies attracted by the bloom's scent.

Alain Compost



GIANT SEQUOIA

The largest living organism is the giant sequoia (*Sequoiadendron giganteum*), which weighs in excess of two million pounds—more than four loaded B-52 bombers. It measures more than 30 feet across at the base and stands 275 feet tall, about half the height of the Washington Monument's 555 feet. The tallest tree currently standing is a 375-foot coast redwood (*Sequoia sempervirens*).

Lisa Strong-Aufhauser

GIRAFFE

Giant sequoias and coast redwoods dwarf the tallest living animal. Giraffes (*Giraffa camelopardalis*) grow to a maximum of about 18 feet, although an 18-inch-long tongue extends their ability to pluck leaves from the tops of trees.

Jessie Cohen/NZP



SARUS CRANE

Male sarus cranes (*Grus antigone*) are up to six feet tall, making them the tallest of all flying birds. Although these birds are about as tall as an adult man, they weigh just 18 pounds. In order to retain the ability to fly, birds must minimize their weight.

Jessie Cohen/NZP

**SEARS TOWER**

At 110 stories and 1,454 feet tall, Chicago's Sears Tower is the tallest office building in the world. If an equivalent tower were built to giraffe proportions, it would have to be 4,752 feet tall—about nine-tenths of a mile high! The tallest structure of any kind in the world is a radio mast outside of Warsaw, Poland. It is just slightly more than four-tenths of a mile high.

Courtesy of Sears, Roebuck and Co.



OSTRICH

Ostriches (*Struthio camelus*), the largest living birds, are too big to fly. An ostrich may reach nine feet tall and weigh 330 pounds, but typically averages about eight feet and 250 pounds. Manute Bol, the tallest player in the National Basketball Association, is just under ostrich size, at seven feet, seven inches, and 225 pounds. Ostriches also produce the largest bird eggs; each weighs four pounds, the equivalent of two dozen hen's eggs. Finally, ostriches have the largest eyes of any terrestrial vertebrate. Their two-inch diameter is the same as that of the top of a Coke can.

D.M. Zimmerman/VIREO

FLYING FOX

The weight limit for a flying mammal is perhaps about three pounds, achieved by some Southeast Asian flying foxes (*Pteropus*). With a wingspan of more than six feet, these bats look eerily like a furry person in flight.



WANDERING ALBATROSS

The wandering albatross (*Diomedea exulans*) boasts the greatest wingspan of any living bird: between 10 and 11.5 feet. The tips of this seabird's wings would touch the floor and the ceiling of a room in a typical home.

R.L. Pitman/VIREO

**ANDEAN CONDOR**

Andean condors (*Vultur gryphus*) are the largest living predatory birds. Weighing more than 30 pounds and with wingspans of more than 10 feet, these giants are also among the heaviest of flying birds. However, a condorlike vulture (*Teratornis merriami*), extinct since about 10,000 years ago, had a wingspan of 13 feet and may have been even heavier.

Jessie Cohen/NZP



QUEEN ALEXANDRA BIRDWING

Native to New Guinea, the Queen Alexandra birdwing (*Ornithoptera alexandrae*) is the largest and heaviest of butterflies. With a wingspan of about 11 inches—the diameter of a dinner plate—it also has the greatest wingspan of living flying insects. Top honors in this category, however, go to an extinct giant dragonfly (*Meganeura monyi*) with a wingspan of 27 inches, about as long as the average man's arm.

Michael Parsons

**CARCHARODON MEGALODON**

Eight members of the National Museum of Natural History's Department of Paleobiology pose within the reconstructed jaws of the extinct *Carcharodon megalodon*, the largest carnivorous fish in history. A close relative of the great white shark, *megalodon* was more than twice as large, reaching lengths of 50 feet and more. Although rumors persist that the creature still exists in the ocean depths, we have nothing but their seven-inch teeth—as big as a man's hand—as evidence that they ever lived. *Megalodon* apparently fed on anything that swam, including huge prehistoric whales, and the reasons for its extinction are unknown.

Chip Clark
National Museum of Natural History



WHALE SHARK

The whale shark (*Rhinodon typus*) is the largest marine fish. The biggest specimens today reach slightly more than 40 feet in length and can weigh as much as 21 tons. Despite its great size, the whale shark feeds mostly on plankton and small schooling fish. The whale shark's four-inch-thick skin is the thickest of any animal and has been known to repel fishermen's harpoons. Whale shark eggs are the world's largest, stretching a foot in length.

Rick Sammon

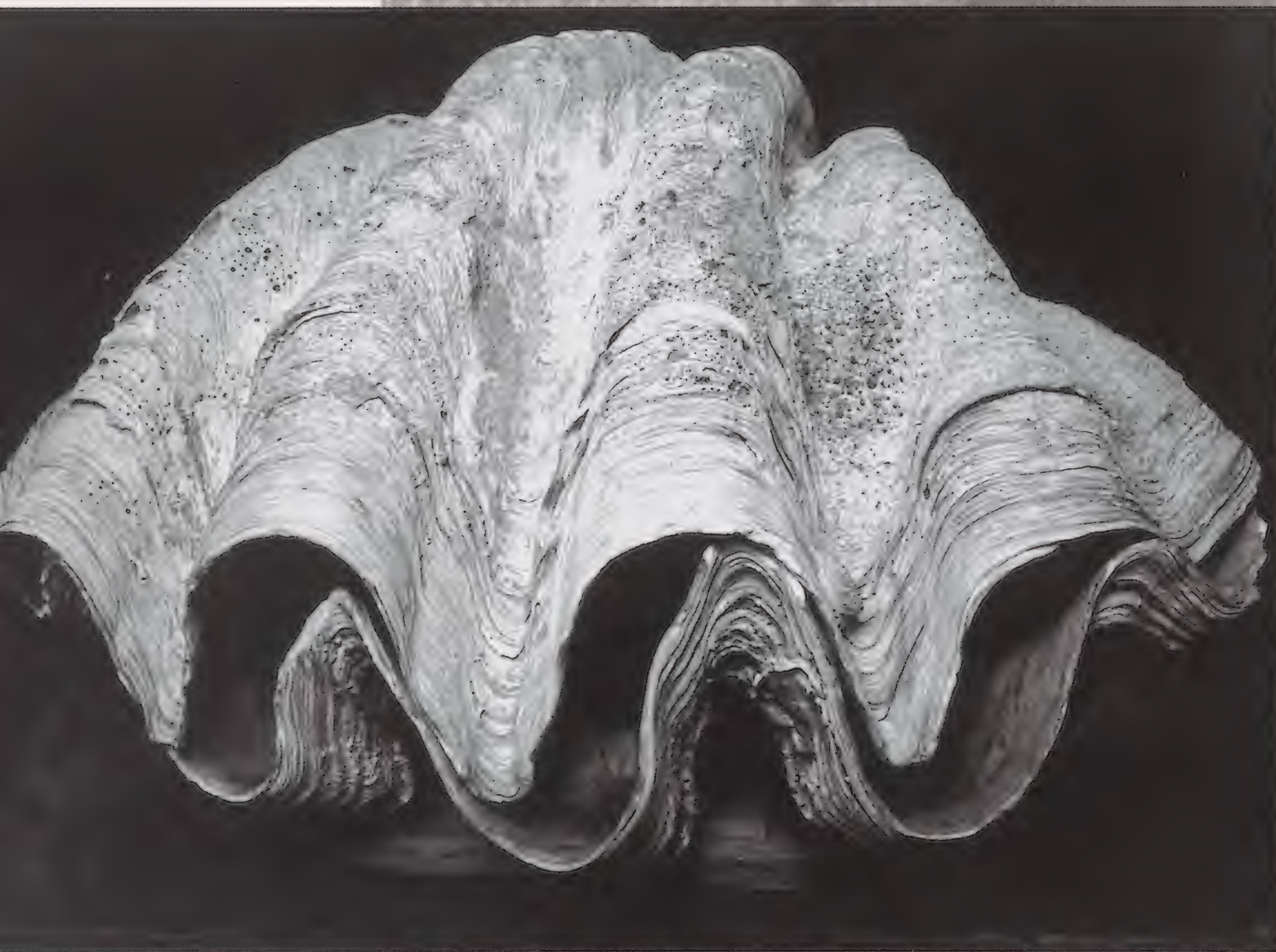
**MANTA RAY**

A flattened relative of sharks, the 3,500-pound manta ray (*Manta birostris*) "flies" through the water flapping wings that span 22 feet, as long as a limousine. Although sometimes called the devilfish, this largest of rays, like the largest of sharks, feeds on plankton.

Rick Sammon

**BIG IN THE WATER**

Water, especially seawater, supports great weight very effectively, so animals reach their greatest size in the sea. In animal groups with both terrestrial and aquatic forms, an aquatic form is often the giant of the group. Whales, for instance, are the largest of all mammals, and sea otters and giant otters are the biggest of all mustelids.



GIANT CLAM

The giant clam (*Tridacna gigas*), is the largest living representative of the sessile mollusca, a group that includes the clams, mussels, and oysters. This huge bivalve of the South Pacific measures as much as a yard across and weighs up to 600 pounds. Its visceral mass, however, rarely exceeds 25 pounds. The animal is also known as the killer clam, a name that is unfairly applied, although careless divers have had their limbs caught between its heavy valves and drowned.

It would take more than 2,200 topneck clams, the variety served on the half-shell at Silver Spring's Crisfield Seafood Restaurant, to equal the weight of the giant clam. On the brighter side, one would need only slightly more than 300 topnecks to equal the meat provided by the giant clam. We have no data as to the relative palatability of the two species.

Pratt Museum of Natural History at Amherst College/Frank Ward

OCEAN SUNFISH

Weighing as much as 5,000 pounds and averaging about 2,000 pounds, the ocean sunfish (*Mola mola*) is the heaviest of the bony fish. (Some cartilaginous fish, such as the whale shark, are heavier.) The distance between the tips of its dorsal and ventral fins is 14 feet, a few inches longer than a Volkswagen Beetle.

Mike Johnson



GIANT SPIDER CRAB

The largest of the crustaceans is the Japanese spider crab (*Macrocheira kaempferi*), which can have a legspan of up to 11 feet. These giants live on the ocean floor at depths between 200 and 1,500 feet. Females lay up to 1.5 million eggs at a time, although few young survive the ten years it takes them to become adults.

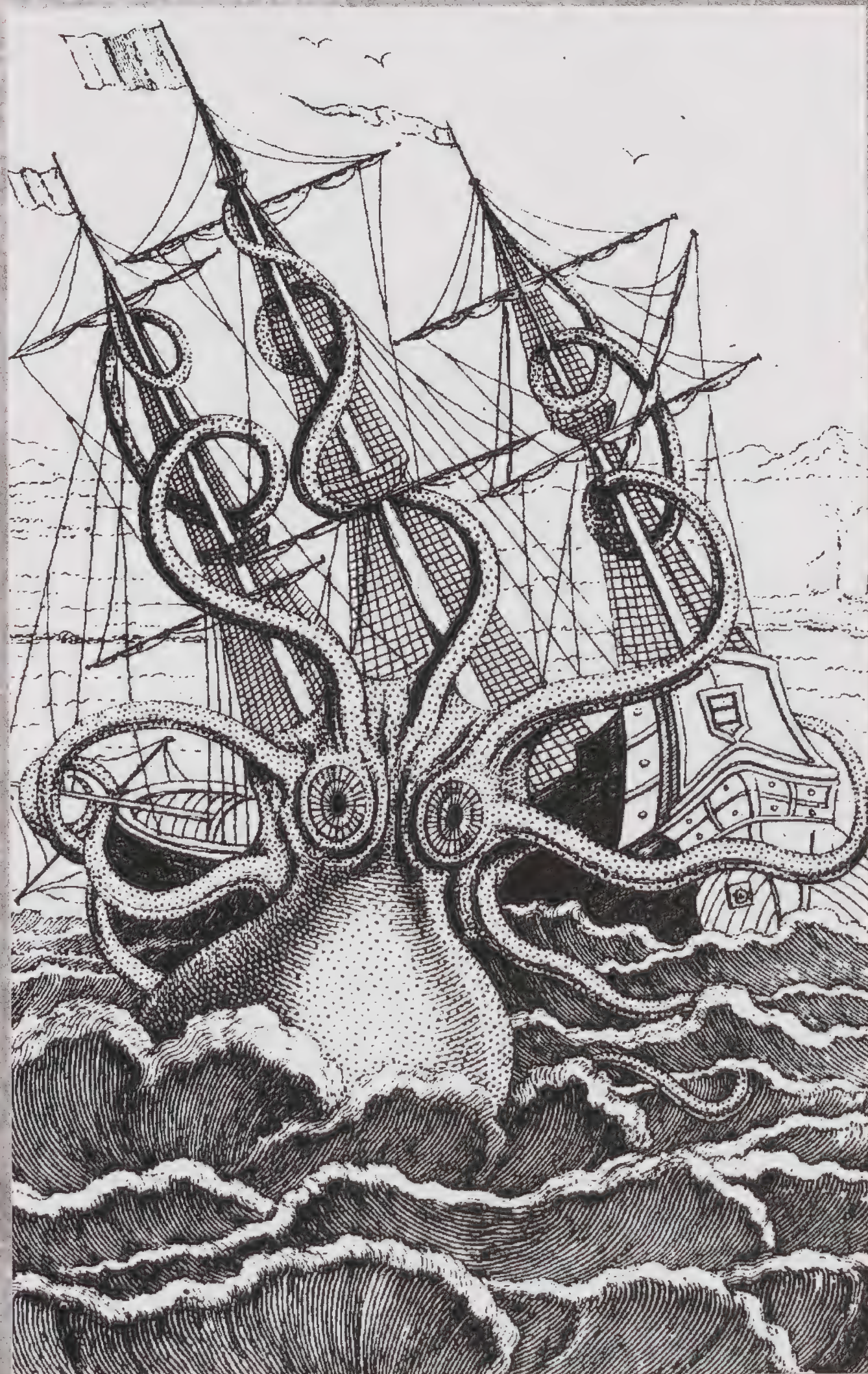
Jessie Cohen/NZP



BELUGA STURGEON

There are fairly reliable reports of Russian sturgeons (*Huso huso*) measuring 24 feet long and weighing more than 3,000 pounds, although average sizes are far smaller. Still, they are the largest of freshwater fish. Also known as beluga, these fish live in the Adriatic, Black, and Caspian seas, and spawn in large rivers such as the Volga and Danube. Beluga are the source of the finest caviar, which is, of course, a female's eggs. One 2,700-pound female beluga caught in 1927 is credited with 541 pounds of eggs. Purchased at Sutton Place Gourmet, where 1.05 ounces of beluga caviar sells for \$55, that one female's eggs would cost \$453,409.52.

Courtesy of the International Society of Cryptozoology

**GIANT SQUID**

A fantastic creature of legends, the giant squid's existence was doubted until the end of the 19th century. Since then, sightings by reputable scientists and carcasses washed up on shore confirm that a giant squid (*Architeuthis*), whose tentacles stretch more than 55 feet, and that weighs as much as four tons, does lurk in the ocean's depths. This giant also boasts the largest eye of any animal: At 15 inches in diameter, the eye is about as big as a beachball.

Engraving by Denys de Montfort

ANACONDA

The many unconfirmed sightings and even killings of fantastically large anacondas (*Eunectes murinus*) are illustrative of the tendency to exaggerate the size of giant animals, especially when these creatures are perceived as dangerous to humans. In an essay on the subject, David Quammen cites reports from earlier this century of anacondas measuring 58, 62, 115, and 131 feet long. Although more reliable sources also vary in their figures, they are nonetheless consistent in describing a considerably smaller animal: average adults are 18 to 20 feet, 25-foot-long individuals are rare, and 33 feet is postulated as the maximum length. It should be noted that the reticulated python reaches greater lengths than the anaconda, but is not as heavy-bodied. The anaconda in this photo lived at the Bronx Zoo in the 1910s. How long would you guess it is?

Courtesy of the International Society of Cryptozoology



INDO-PACIFIC CROCODILE

As is the case with the anaconda, there is much disagreement regarding the lengths and weights reached by the Indo-Pacific crocodile (*Crocodylus porosus*). However, there is no disputing that this creature is the world's largest reptile. Various sources report its maximum length as anywhere from 20 to 30 feet. This discrepancy is easier to reconcile when one realizes that these animals continue to grow throughout their lives, but that 30-footers may no longer exist because, as one author writes, "it is unlikely nowadays that any individual would escape a hunter's bullet long enough to achieve such dimensions."

This picture is of a dead Indo-Pacific crocodile named Sweetheart, who attacked and upset a number of motorboats—although he never killed a human—outside Darwin, Australia, in 1971. Sweetheart was 16 feet 9 inches long, and weighed more than 1,700 pounds. The object in his mouth is an engine cowling from a motorboat.

Courtesy of the International Society of Cryptozoology



GORILLA

Largest of the living primates, gorillas (*Gorilla gorilla*) were not described scientifically until 1847 and were little known to Europeans until the 1870s, when a French explorer gave lectures about his meeting creatures he described as "from a hellish nightmare." The myth of gorillas as savage monsters persisted until the 1960s, when George Schaller's pioneering field studies revealed them to be shy and rather peaceful vegetarians, albeit big, 400-pound ones. Still, gorillas face extinction through a combination of poaching and habitat loss in their native African forests. This makes the National Zoo's breeding program for gorillas, in which two babies have been born since 1991, part of essential efforts to save this species.

Jessie Cohen/NZP

LOCH NESS MONSTER

Despite years of effort, no one has been able to find a living candidate for the notorious Loch Ness Monster. This 1934 photograph, long considered the best evidence for the sea-serpentlike creature's existence, was recently revealed as a hoax. Still, a million people hoping to see the beast visit Loch Ness each year, making this Scottish lake one of the United Kingdom's top tourist attractions.

Courtesy of the International Society of Cryptozoology



BIG FOOT

Sightings and tracks of a huge apelike creature, called Big Foot or Sasquatch, that roams the Pacific Northwest have been reported for more than a century, but few believe the creature exists. However, the fossil remains of a giant ape (*Gigantopithecus*) standing nine feet tall and weighing about 600 pounds have been found in Asia. This creature died out about 300,000 years ago, perhaps exterminated when our relative *Homo erectus* reached Asia. A few people speculate that the legendary Yeti, or Abominable Snowman, is a relict population of this or some other giant ape that survives in the remoteness of the Himalaya.

Courtesy of the International Society of Cryptozoology



GIANT PANDA

Contrary to their early negative image of gorillas, Westerners have always perceived giant pandas (*Ailuropoda melanoleuca*) as cuddly, lovable creatures, even though they are 200- to 300-pound bears, quite capable of killing with their long canines and sharp claws. But a positive image has not helped this species, which is the most endangered of the bears. Only about 1,000 giant pandas survive in the mountains of western China, and fewer than 100 live in zoos worldwide. The recently formed Giant Panda Species Survival Plan, led by the National Zoo's Devra Kleiman, is developing ways to save giant pandas through both zoo breeding programs and habitat protection in China.

Jessie Cohen/NZP

GREATER ONE-HORNED RHINOCEROS

Standing about six feet tall and weighing up to 4,400 pounds, Asia's greater one-horned rhino (*Rhinoceros unicornis*) is the second largest of the five rhino species. Africa's white rhino (*Ceratotherium simum*) is first by about 500 pounds and half a foot, while black, Javan, and Sumatran rhinos are all considerably smaller—if something 1,800 pounds can be considered small at all. Whatever their size, rhinos as a group are among the most endangered species on earth. With numbers already reduced due to habitat loss, poaching for horns worth more on the black market than their weight in gold may eliminate an animal lineage that arose 60 million years ago.

Jessie Cohen/NZP

**NILE HIPPOPOTAMUS**

Almost alone among terrestrial giants, the Nile hippopotamus (*Hippopotamus amphibius*) is not endangered. One reason for this may be that its rate of reproduction is comparatively high for an animal of its size. Gestation in the two-ton hippos lasts just eight months, compared to 22 months for elephants and 15 to 18 months for the larger rhinos. What's more, females can produce an infant yearly under good conditions, whereas elephants give birth only every three to four years and rhino births are spaced two to three years apart. This means that hippos are much better able to rebound quickly from population losses.

Jessie Cohen/NZP



KUMARI

Kumari, the first elephant ever born at the National Zoo, is the product of a zoo breeding program to help save Asian elephants (*Elephas maximus*) from extinction. Although these giants have long been revered in Asia and remain an important component of the work force in some areas, they now compete directly with people for space in an increasingly crowded world.

Jessie Cohen/NZP

PLEISTOCENE GIANTS

Modern elephants are among the last of a spectacular megafauna that largely died out at the end of the Pleistocene, about 10,000 years ago. In the Americas, giant short-faced bears, giant beavers, huge dire wolves, and giant jaguars and lions all became extinct about this time, perhaps due to overhunting by the first people to settle the Americas. Northern South America was even home to a giant ground sloth (*Megatherium americanum*), which reached more than ten feet in length. Like elephants do, the giant sloths are thought to have used their great size and weight to push over trees to browse on leaves.

TYRANNOSAURUS REX

Tyrannosaurus rex ("king of the tyrant lizards") was among the largest meat-eating land animals of all time. Reaching lengths of 42 feet, and weighing as much as seven tons, this animal was powerful enough to attack even the five-ton, heavily armored *Triceratops* (pictured).

Tyrannosaurus was equipped with teeth up to seven inches long that featured a sharp, serrated edge for cutting and tearing the flesh of prey animals. New teeth would grow to replace those that were lost, broken, or worn down. *Tyrannosaurus rex* became extinct 65 million years ago and only a handful of incomplete skeletons have been recovered, all of them in Montana.

Trans. no. PK212. Courtesy Department of Library Services; American Museum of Natural History



THREATENED AND ENDANGERED GIANT ANIMALS AT THE NATIONAL ZOO

Gorilla, Sumatran tiger, Asian elephant, African elephant, Greater one-horned rhinoceros, Kodiak bear, Sarus crane, Andean condor, Komodo dragon, Giant panda



SPERM WHALE

The sperm whale (*Physeter macrocephalus*) is the largest predator that has ever lived. Reaching lengths of 60 feet, and weighing as much as 60 tons, it is considerably larger than *Tyrannosaurus rex* or any of the other carnivorous dinosaurs. It would take 27,428,572 pygmy white-toothed shrews (*Suncus etruscus*), the world's smallest mammalian predators at seven-hundredths of an ounce, to surpass the weight of a sperm whale. The sperm whale's 20-pound brain is the heaviest in the animal world. Despite countless tales of the sperm whale's violent nature (Melville's *Moby Dick* was one), the creature is essentially harmless to humans, feeding on squid and other large invertebrates as well as fish. On the other hand, the sperm whale was the main target of the New England whaling industry of the 18th and 19th centuries, and is internationally protected as an endangered species today.

Bill Rossiter
Center for Marine Conservation

KOMODO DRAGON

The largest living lizards are Komodo dragons (*Varanus komodoensis*), which may reach 10 feet in length and weigh more than 220 pounds. Confined to Flores, Komodo, and a few other Indonesian islands, these huge carnivores prey mainly on deer, pigs, and other large domestic animals. A big predator requires such big prey to survive. But what did Komodo dragons eat before people brought these animals to the islands just thousands of years ago? Elephants, many scientists now believe. During the Pleistocene, two species of dwarf elephants (*Stegodon*) coexisted with Komodo dragons and were likely the dragon's principal prey. The area's first people probably killed off the *Stegodons*. Today, the National Zoo is leading efforts to ensure that the dragon does not become extinct as well. The first successful hatchings of dragon eggs outside of Indonesia have occurred at the Zoo.

Jessie Cohen/NZP



ROSE BOWL

When the University of Michigan Wolverines and the University of California at Los Angeles Bruins met in the Rose Bowl in 1983, 104,991 people saw the game in the largest stadium in the United States. What if those people were replaced by the animals that represent these teams? Wolverines (*Gulo gulo*) are the largest terrestrial mustelid; bruins, or brown bears (*Ursus arctos*), are the largest terrestrial carnivore. Using weight for comparison, 209,980 wolverines would fill their half of the stands, and 20,998 bruins theirs. However, the wolverine side would come up short—only about 85,000 wolverines live in all of North America. And about half of all the bruins in North America would have to turn up at the Rose Bowl to fill their side. Bruins are among the pugnacious wolverines' only predators, and in the '83 Rose Bowl sports imitated life, with UCLA beating Michigan 24 to 14.

Courtesy of Pasadena Tournament of Roses

TIGER

In general, the larger the animal, the larger the area or home range it must have to find enough prey to survive. For instance, in Nepal's Chitwan National Park, where prey is abundant, a female tiger's home range is about eight square miles, and a male's is 24 square miles. In prey-scarce Siberia, however, a female's range varies from 40 to 155 square miles, and a male's may be as large as 400 square miles. To put that in perspective, under the best of conditions, Washington, D.C.'s 61 square miles might support seven female and two male tigers. Under the worst conditions, just one female might live in the District. In fact, four Sumatran and two other tigers do live in D.C., at the National Zoo. The Sumatran tigers are a breeding pair and their young. They are part of a Species Survival Plan to save this endangered subspecies in zoos.

Jessie Cohen/NZP

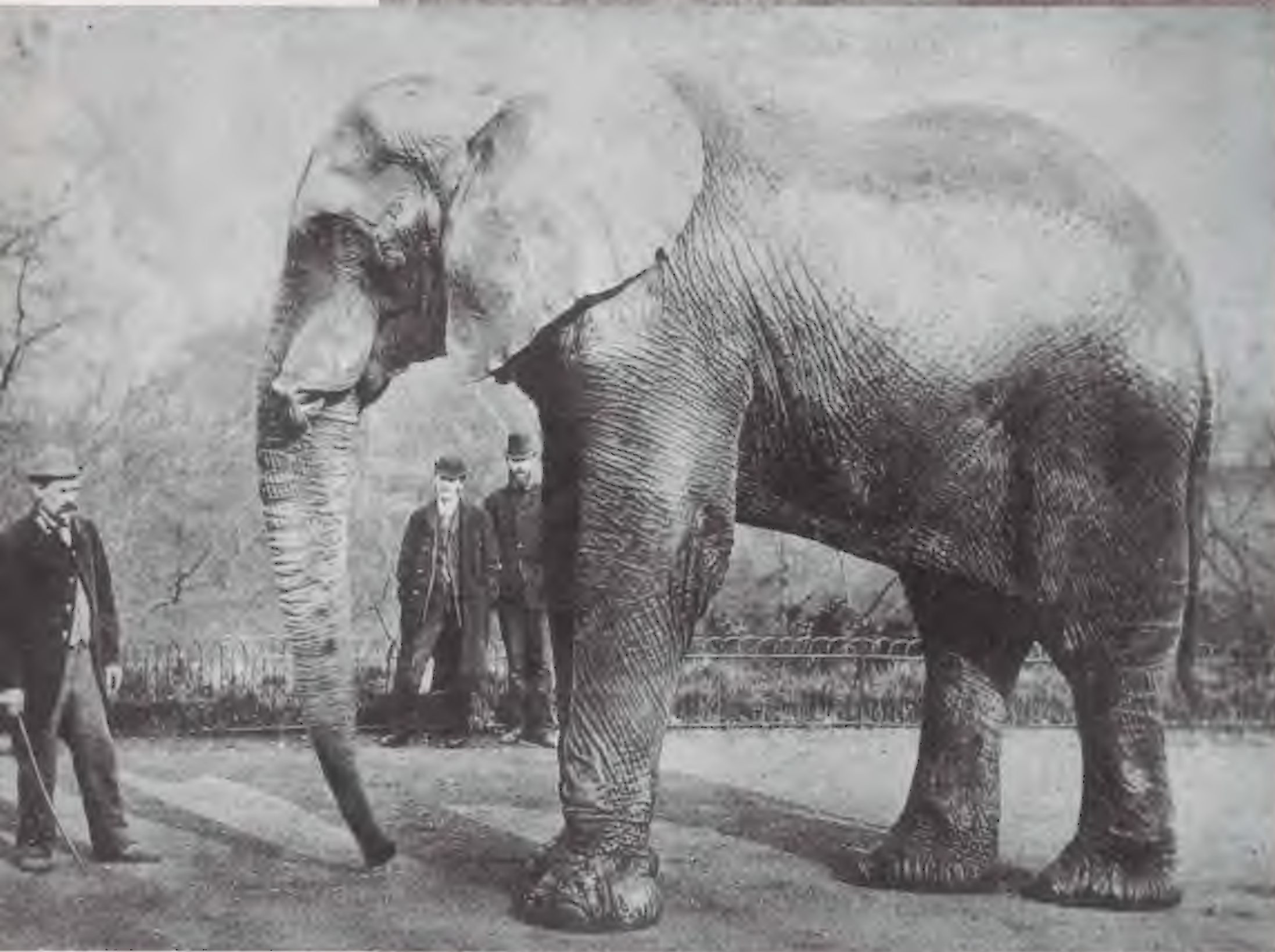


PHILIPPINE EAGLE

One of the largest and rarest of eagles, the Philippine eagle (*Pithecophaga jefferyi*) survives in what's left of the rainforest on just four Philippine islands. Once called the monkey-eating eagle, this ten-pound, three-foot-tall raptor, with a wingspan of seven feet, can and sometimes does prey on macaque monkeys weighing nearly as much as itself. It captures prey, most often palm civets and squirrels, in its huge toes tipped with talons up to two inches long—as long as a jumpo paper clip.

Washington, D.C.-based Conservation International is helping the Philippines preserve habitat for this magnificent bird of prey.

Wolfgang A. Salz/F.R.E.E., Ltd.



JUMBO

Products from popcorn to detergent are sold in jumbo sizes. Wide-bodied airplanes are called jumbo jets. The Washington Redskins send in their "heavy jumbo" package when it's third and goal on the one-yard line. The word jumbo (probably a corruption of a West African word, *onjamba*, for elephant) actually entered common American usage as a result of the popularity of Jumbo, a circus elephant made famous in the 1880s by showman P.T. Barnum. Mammoth, from the Russian *mamot*, also first described the elephantlike animal whose remains were found in Siberia. Later, mammoth came to be synonymous with big words like elephantine and jumbo.

Courtesy of The Barnum Museum, Bridgeport, Conn.

POLAR BEAR

Bears are outliers on the curve that relates the weight of a female placental mammal's newborn litter to the mother's weight. A 440-pound polar bear (*Ursus maritimus*), for instance, gives birth to cubs that weigh about a pound and a half each. A litter of two to four would thus weigh between three and six pounds. If the polar bear were a "typical" mammal, the litter would be expected to weigh 48 pounds.



ELEPHANT STAG BEETLE

Elephants lend their name to a variety of creatures that are giants of their kind, such as elephant birds, elephant seals, and even elephant beetles. Native to tropical America, a five-inch-long elephant stag beetle (*Megasoma elephas*) would fill the palm of your hand. The horns, which only males possess, are thought to be important in competition for females, much like the antlers of deer.

Cincinnati Zoo and Botanical Garden

**GOLIATH BEETLE**

About as long as an elephant beetle, the African goliath beetle (*Goliathus regius*) is bulkier and, at three or more ounces—the weight of two golf balls—heavier than the elephant beetle. It may be the heaviest of all flying insects.

Cincinnati Zoo and Botanical Garden

NEW YORK GIANTS

What nickname could be more fitting than "Giants" for a sports franchise representing the nation's largest city as well as the Empire State? Here, the New York Jets' 220-pound running back Johnny Johnson collapses under the weight of four New York Giants' tacklers weighing a collective 1,038 pounds. But, like modern-day Davids, the Jets were Giant-killers in this 1993 National Football League matchup, defeating the Giants 10-6.

Paul Spinelli/NFL Photos



DAVID AND GOLIATH

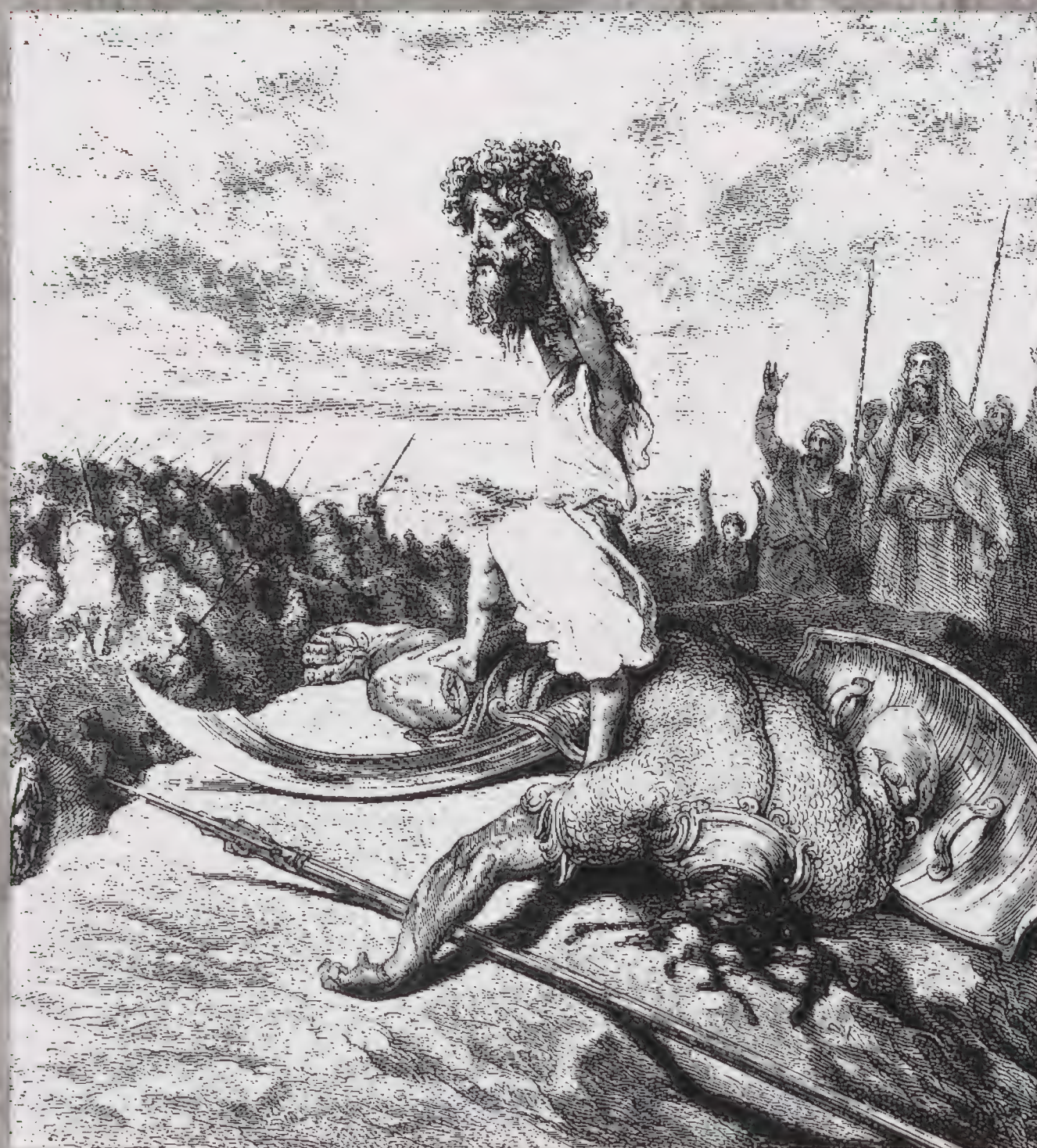
In the Biblical story, the young Israelite shepherd boy David kills and beheads the Philistine Goliath, "whose height was six cubits and a span [about 11 feet]." For his heroic efforts, David wins acclaim and the king's daughter. Since our ancestors began painting on cave walls, tales have been told of mere men conquering giants, from cave bears, Grendel, and Moby Dick to the trophy animals of big-game hunters. Unfortunately, mere men have been all too successful. Many giants, such as elephant birds and Steller's sea cows, are already gone. Most of the rest exist in perilously small numbers in a world grown too small for them. It may not be too late to save some of these giants, but the giant-savers' efforts will have to be as heroic as those of the legendary giant-killers.

The Bettmann Archive

If I have seen further it is by standing on the shoulders of Giants.

—Sir Isaac Newton

We are grateful to all the people who helped with Giants: James Anderson, David Bradshaw, Eugenie Clark, Mike Evans, Paul Fournier, Dan Glidden, J. Richard Greenwell, Amy Kulhavig, Steve Landis, Jill McLaughlin, Michael Parsons, Gaynor Peary, Rick Sammon, John Seidensticker, Lisa Strong-Aufhauser, and Jill Ward.



Uncle Beazley Returns to the Zoo

Uncle Beazley, the life-size *Triceratops* model that delighted a generation of children on the Mall outside the National Museum of Natural History, will be given a new home in the Zoo's Rhino Yard early this summer. According to the popular story, *The Enormous Egg*, written by Oliver Butterworth, Uncle Beazley hatched from a hen's egg on a farm in Freedom, New Hampshire. He was cared for by Nate, the son of the family, who befriended the Smithsonian's curator of paleontology.

According to the story, when Uncle Beazley grew too big for his New Hampshire home, he was taken to Wash-

ington and housed in the Natural History Museum. He soon outgrew those quarters, too, and eventually found a home in the Elephant House at the National Zoo, much to the irritation of a budget-cutting Senator, who was oblivious to the scientific value of a living dinosaur.

The Uncle Beazley model was one of a set of nine dinosaurs designed and built for the Sinclair Refining Company's pavilion at the New York World's Fair in 1964. Two renowned paleontologists, Barnum Brown of the American Museum of Natural History in New York, and John Ostrom of the Peabody Museum of Natural History in New Haven, Connecticut, de-

signed Uncle Beazley. The series of figures was built by Louis Paul Jonas, a leading taxidermist and animal sculptor who had immigrated to the United States from Hungary in 1914.

Following the World's Fair, the models toured the eastern United States and eventually were donated to museums. In 1967, NBC produced a movie based on *The Enormous Egg*, and used the *Triceratops* model in scenes filmed at the Zoo. Shortly after, it was donated to the Smithsonian.

Uncle Beazley spent 25 years on the Mall, where enthusiastic children, fresh from the Natural History Museum's dinosaur exhibits, compared the skeletal structures they saw in the museum with this representation of what dinosaurs may have looked like, fleshed out with muscle and skin. Uncle Beazley was removed from the Mall in 1992, and spent the last two years at the Museum Support Center. He traveled back to the Louis Paul Jonas studios in New York for restoration in preparation for his move to the National Zoo.

Last Chance for Giants

A few tickets and tables are still available for Giants,

FONZ's gargantuan National ZooFari gala on Thursday, May 19, from 6:30 to 11:00 p.m. More than 80 restaurants are signed up to serve their finest fare and Bo Diddley will put on a really big show. And, of course, guests can visit the Zoo's giants, from Komodo dragons to Kumari the baby elephant. Proceeds benefit the Theodore H. Reed Animal Fund, which helps support conservation, education, and BioPark exhibition programs at the National Zoo. Tickets are just \$85 for FONZ members and \$100 for the general public. Tables for ten are \$1,500, and tables for ten hosted by a zoologist are \$2,000. Please call 202.673.4960 for tickets and information. Giants is being underwritten by The Coca-Cola Company and the Ralston Purina Company.

Migratory Bird Day

The Smithsonian Migratory Bird Center will host the second annual celebration of International Migratory Bird Day, at the Zoo on Saturday, May 14, from 10:00 a.m. to 4:00 p.m. The goal of the event is to highlight the grand phenomenon of bird migration between breeding grounds in North America and wintering grounds in Latin America and the



Uncle Beazley at his former Mall home. (Chip Clark/National Museum of Natural History)

Caribbean, and to draw attention to the alarming decline in the numbers of many species of migratory birds.

The celebration will offer something for everyone, with diverse activities including exhibits by conservation organizations, "avian" arts and crafts, entertaining presentations on migratory birds, bird walks, and even appearances by live migratory birds. For more information, please call 202.673.4717.

Get on Board

The FONZ Board of Directors plays a significant and crucial role in overseeing the organization's operations, establishing its priorities and goals, and ensuring that all of FONZ's activities further the mission of supporting the National Zoo. Service on the voluntary Board is an excellent way for members to contribute their ideas, enthusiasm, and expertise to a cause they believe in. It's also a great opportunity to truly become a behind-the-scenes insider at the Zoo. So throw your hat in the ring and run for a seat on the Board. If you can't run, you can nominate another member who can. The Call for Nominations (at right) spells out the details. If you have questions, please call 202.673.4951.

Call for Nominations

Dear Member:

Each year, in accordance with our By-laws, the Board of Directors of Friends of the National Zoo solicits nominations from the membership. Our volunteer Board plays an essential role in the leadership and operation of FONZ, and we rely on our members to recommend people with appropriate skills and talents to assist our efforts to support our great Zoo.

I ask you to help by nominating to the Board persons who are interested in this very special community service. (You may also nominate yourself.)

Nominations will be reviewed by the Board's Nominating Committee. The names of selected candidates will be forwarded to the membership for election.

The criteria by which potential candidates are judged for nomination to the Board of Directors include: the candidate's strong interest in supporting zoological education, research, and conservation in accordance with the purposes of our corporation; leadership; experience or skills that are needed and that would directly benefit the management and operations of FONZ; and the willingness to commit significant amounts of time to participate fully in FONZ work and activities. Candidates must be dues-paying members of FONZ.

Much of the Board's work is accomplished through committees. For example,

The **Education Committee** makes policies and provides guidance for FONZ-supported education, conservation, outreach, and Zoo-support programs.

The **Membership Committee** develops policies related to membership activities and provides oversight for membership acquisition and retention programs.

The **Visitor Services/Concessions Committee** formulates policies for FONZ concessions operations and visitor support services.

Other Board Committees or Subcommittees include: Administration, Capital and Strategic Planning, Development, Finance and Audit, Nominating, ZooFari and Special Events, and Publications.

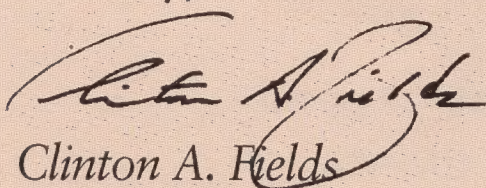
All Board members are expected to serve on at least two committees and attend two or more meetings or functions each month.

Nominations may be made only by dues-paying members and must be submitted on an official FONZ Nomination Form with a biographical sketch of the nominee.

Call 202.673.4951 to receive Nomination Forms or to discuss Board service with me or a member of the Board. The deadline for submitting nominations is June 30, 1994. Address submissions to:

William H. Berman, Chair, Nominating Committee, FONZ, National Zoological Park, Washington, D.C. 20008.

Sincerely,



Clinton A. Fields
Executive Director

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Join us for tons of fun at

GIANTS

FONZ's 11th Annual
National ZooFari

Thursday, May 19, 1994

Friends of the National Zoo
National Zoological Park
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